

MAJOR TANKER ACCIDENTS

ABSTRACT

This paper analyses and compares 3 rock oil tanker accidents that occurred from 1989 to 2002 (an explosion, a grounding and a hull failure), light their similarities still as their variations. Once a short review of maritime safety connected conventions, rules, best practices and applied math analysis of tanker accidents and oil spills in previous decades, a tabulated comparison is followed by a brief description of however the 3 accidents occurred. it absolutely was disclosed that among the most factors touching safety and resulting in such tanker accidents square measure scenario misjudgments, inadequate risk management procedures, communication failures and delayed choices of the relevant authorities, and inappropriate use or poor maintenance of crucial safety connected systems on board (i.e. IGS), while not excluding crew fatigue and substandard shipping practices.

INTRODUCTION

The carriage of oil product within ships' hulls dates back to the nineteenth century, though the first strategies used barrels or casks. With the post-World War II economic enlargement and therefore the of import energy demand, oil transport flourished to such associate extent that a brand new shipping framework evolved, whereas new kinds of ship with regard to size, wares combination, propulsion, endurance, manning, safety utilization, and carrying capability were introduced. The look of a tanker, amongst alternative factors, depends on ship dimensions, hull form, machinery, speed, deadweight, accommodation and tank arrangement, and structural arrangement

OIL SPILL PREVENTION REGULATION

Since the creation of the UN agency (International Maritime Organization) in 1948 beneath the auspices of the UN, no uniform environmental performance or ocean safety security for international shipping regulation existed (Churchill R and Lowe A, 1992). This oversight was corrected by making a framework of laws for the shipping business that's "fair and effective, universally adopted and universally implemented"². a quick define of the signed conventions follows:

- a. SOLAS (Safety of life at sea) specifies the minimum acceptable standards for construction, equipment, operations and needed certifications of ships. The responsibility of compliance is given to the flag states, additionally to the review right of foreign vessels visiting their ports. (Adopted: 1974 - Into force: 1980) ^[1]
- b. The philosophy code (International Management Code for the Safe Operations of Ships and for Pollution Prevention), that forms chapter IX of SOLAS, was introduced once variety of great pollution accidents. (Adopted: 1993 - Into force: 1998)
- c. The STCW (International Convention of Standards of coaching, Certification and Watch keeping for Seafarers) introduced the essential international standards during this field. (Adopted: 1978- Into force: 1984)
- d. COLREG (Convention on the International laws for Preventing Collisions puzzled) revised the International laws for preventing Collision at ocean 19604. (Adopted: 1972 - Into force: 1977) ^[1]
- e. The CLL 68/88 (International Convention on Load Lines) defines the minimum freeboard, watertight integrity, and survivability of ships. (Adopted: 1988- Revised: 2003)
- f. MARPOL (The International Convention for the bar of Pollution from Ships, 1973), as amended in 1978 set the standards for bar of pollution by oil, chemicals, harmful substances and garbage. (Adopted: 1978 - Into force: 1983)

g. SAR (International Convention on Maritime Search and Rescue), INMARSAT (International Convention of the Maritime Satellite Organization) and also the International Convention for Safe Containers square measure extra IMO laws.

Other necessary regulative factors and factors of technology innovation that strengthen the security culture of international shipping include:

- a. The Double Hull/ Double Bottom (DH/DB) regulation adopted in 1992 and implemented in 2005, 5 that play a vital role in oil spill bar.
- b. The element System (IGS) that operates in such the simplest way that it renders the atmosphere of the freight tanks non-flammable and maintains incombustibility. (Adopted: 1978 - Into force: 1981)
- c. The reduction of human issue errors⁶ (due to poor judgment, stress, adequate staffing, poor living conditions, fatigue, etc.) by up coaching, safety, the culture of environmental awareness, and communication between school of thought and trilingual crews.
- d. The Port State management (PSC), associate internationally in agreement regime that has been a very important safety and security compliance tool since 1982.

METHODOLOGY

The Comparative analysis accustomed study the accidents of 3 tanker ships specifically “M/T Exxon Valdez”, “M/T HAVEN”, and “M/T Prestige”. very dangerous things like ocean water flow, fireplace and/or explosion (which is one amongst the foremost severe) might occur throughout such incidents, leading to partial or total vessel loss, life injuries or fatalities, and environmental disasters. In cases of explosions, little or no proof remains, limiting the power to analyze and perceive the important causes of the accident. The variation of actual information concerning the payload lost is determined. The foremost relevant figures that are common to any or all 3 vessels, found from numerous sources, are portrayed in relevant tables enclosed in information Analysis section.

One of the foremost crucial parameters concerning the actions taken (by crews, ship-owners, companies, flag states, port authorities, etc.) to handle matters and manage the danger, is that the timely (right) call, amalgamated with crew competency and knowledge. If delays or miscommunications occur, the result is also harmful. To analyze and measure the facts and reasons for the accidents, relevant laws, conventions and best practices are going to be accustomed establish any omissions, misconduct, machinery malfunctions or human errors and recommend preventive and corrective actions wherever applicable.

DATA ANALYSIS

M/T Exxon Valdez

On twenty fourth March 1989, whereas sailing within the space of aristocrat William Sound, Alaska, the VLCC M/T EXXON port grounded on Bligh Reef. Associate estimation of forty two, 000 to 144,000 money supply of fossil oil leaked and unfold within the space. Though a good effort was created to recover the leaked oil, solely regarding 100 percent of the spill was recovered. This human-caused accident is taken into account one amongst the foremost devastating environmental disasters. The wedged space had vital fisheries and life like bald eagles and ocean otters (Rice et al., 1996). The most reasons for the accident were:

- The course of the Exxon port outside a secure ocean passageway, to avoid icebergs.
- The third mate’s failure to properly maneuver the vessel, in all probability thanks to excessive employment or fatigue.
- The poor maintenance of the Raytheon Collision rejection System (RAYCAS) measuring system (out of order for one year).
- The inadequate crew (in terms of sufficiency and resting hours) provided by Exxon company to M/T Exxon port.

•Manning levels were 0.5 the scale compared to 10 years earlier, and therefore the crew worked twelve to fourteen hour shifts, and overtime. In addition, the corporate didn't supervise the master (who was allegedly drinking heavily and not gift on the bridge).

M/T Prestige

On eleventh Apr 1991, associate explosion⁹ occurred on board the VLCC tanker, M/T Haven. The ship caught fireplace and sank off the coast of urban center, Italy. Whereas unloading the 230,000 tons of fossil fuel to the Mulcted floating platform and having already transferred eighty, 000 tones, she disconnected for a routine internal transfer operation once the explosion occurred. 5 crewmen died at once, 30-40,000 mt. of fossil fuel poured into the ocean and because the fireplace engulfed the ship, flames rose up to 100m high. The Italian authorities tried quickly to regulate the hearth and therefore the spillage by deploying many firefighters and distributing quite six miles of expansive barriers. Eventually she sank and have become one in every of the most important shipwrecks within the world.

CONCLUSION

Despite the quantity of rules in effect, best management practices, lessons learned, directions, continuous coaching, external /internal audits, surveys, and vetting inspections, tanker accidents still occur. The interruption between adoption, modification and social control of Maritime rules within the shipping business, that is as a result of the slow pace and high price of implementing technology or rules on older vessels, is one among the most reasons for the on top of. Substandard shipping, inadequate manning, crew fatigue as a result of restricted resting time, inappropriate use or poor maintenance of crucial safety connected systems on board, infrequent and restricted Classification Societies and/or Port Authorities inspections (as so much as rate and ships' arras/systems/machinery are concerned), communication failures, misjudgments, poor risk management procedures, and delayed selections from the relevant authorities are among the most factors resulting in such disasters. There is a downward trend within the range of tanker accidents, though the mean total amount of transported oil has been showing associate degree upward annual trend for the last 3 decades. This is often a hopeful sign that the endeavor to manage risk, forestall malfunctions and reduce human error has begun to pay off.

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